

Product Information

Monoclonal Anti-Gemin 3

Clone 12H12
Purified Mouse Immunoglobulin

Product Number **G6544**

Product Description

Monoclonal Anti-Gemin 3 (mouse IgG1) is derived from the 12H12 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from mice immunized with recombinant human C-terminal domain of Gemin 3 (amino acids 368-548).¹ The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Gemin3 recognizes human, bovine, hamster, and chicken Gemin3.¹ It does not recognize mouse or *Xenopus* Gemin3.¹ The antibody epitope resides within amino acids 368-548 of human Gemin3. The antibody can be used in immunoblotting (approx. 105 kDa with an additional 55 kDa band),¹ immunoprecipitation,¹ and immunocytochemistry.¹

Spinal muscular atrophy (SMA) is caused by reduced expression or mutations in the Survival of Motor Neurons (SMN) protein. Two copies of the SMN gene (SMN1 and SMN2) exist in humans on chromosome 5. Deletion or mutations in the telomeric copy (SMN1) cause the SMA phenotype. The severity of SMA is in direct correlation with the expression level of the SMN protein either from the SMN1 gene or a different spliced form of SMN from the SMN2 gene.²⁻³

The SMN protein forms a multi-protein complex with the Gemin proteins. Gemin2, 3, 5, and 7 interact directly with the SMN protein while the interaction of Gemin4 and 6 requires Gemin3 and 7 respectively. The SMN complex interacts with various protein substrates such as Sm and Lsm proteins of the spliceosomal snRNPs, fibrillarin, GAR1, RNA helicase A, the human hnRNP proteins (hnRNPQ, U, and R), coilin, and p53. Arginine and glycine rich regions in the protein substrates are important for the interaction with the SMN complex. Furthermore, methylation of

arginines in these regions by the methylosome (aka PRTM5) enhances their affinity for the SMN. The SMN complex is important in various biological events such as assembly and restructuring of spliceosomal snRNPs, pre mRNA splicing and transcription.^{1,4,5}

Monoclonal antibodies specific for Gemin3 are an important tool for studying the role of the Gemin protein family in nuclear processes.

Reagent

Monoclonal Anti-Gemin 3 is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: Approx. 2 mg/ml.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

By immunoblotting, a working antibody concentration of 0.5-1 µg/ml is recommended using HeLa cell extract.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working concentration by titration.

References

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3. Pellizzoni, L., et al., Proc. Natl. Acad. Sci. USA, **96**, 11167-11172 (1999).
4. Baccon, J., et al., J. Biol. Chem., **277**, 31957-31962 (2002).
5. Pellizzoni, L., et al., Science, **298**, 1775-1779 (2002).

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